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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,741	09/30/2004	Setsuo Omoto	2004-1468A	9829

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WENDEROTH, LIND & PONACK, L.L.P.  
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SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER
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HANDAL, KAITY V

ART UNIT	PAPER NUMBER
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1764

MAIL DATE	DELIVERY MODE
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08/07/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary**

Application No.

10/509,741

Applicant(s)

OMOTO ET AL.

Examiner

Kaity Handal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 1, 3, 10-12, 17, 20, 23, 26, 29-30
- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 10-12, 17, 20, 23 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 29-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 6/19/2007.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/29/2007 has been entered.

### ***Claim Objections***

1. Claim 3 is objected to because of the following informalities:

Claim 3 contains unclear language in relation to the location of the adsorbent.

The phrase "at least one of a location in said raw gas" in line 3 is objected to.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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3. Claims 1, 3, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 06-203865 in view of Erickson (US 4,287,170).

With respect to claims 1 and 29, JP 06-203865 teaches a fuel cell power generation apparatus (illustrated in fig. 1) comprising: a raw gas feeding means (see for example line B, J, F, D, E, 8) for feeding into the fuel reforming device (1) raw gas; an inert gas formation means (8)/oxygen adsorbent (Abstract, paragraph [0010]).

While JP 06-203865 shows that oxygen is removed from gas containing oxygen and nitrogen inert gas formation means (8) including by oxygen adsorbent, the reference does not disclose any specific design or operation of said inert gas formation means. Since inert gas formation means including an oxidizable and reducible oxygen adsorbent, and further including an adsorbent reduction means for reducing the oxygen adsorbent by feeding a reducing gas into the oxygen adsorbent, wherein the oxidizable and reducible oxygen adsorbent includes at least one of chromium (Cr), manganese (Mn), iron (Fe), cobalt (Co), nickel (Ni), copper (Cu), and zinc (Zn), wherein said adsorbent reduction means includes a heater for heating the oxygen adsorbent were known in the art at the time of invention, as evidenced by Erickson (see Erickson C4/L55-60, C5/L14-17, C2/L40-50, C7, claim 1 and abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to replace the inert gas formation means of JP 06-203865 with the inert gas formation means of Erickson, since doing so would

amount to nothing more than a use of a known apparatus for its intended use in a known environment to accomplish entirely expected result.

Further, the examiner notes that Erickson does, in fact, teach that the reducing gas used in the inert gas formation means comprises methane, hydrogen, CO, or other gaseous hydrocarbons, or mixtures thereof (see C3/L24-27), but the reference does not disclose any specific source of said gas. Since the reformed gas of JP 06-203865 will, inherently, comprise methane, hydrogen, CO, or other gaseous hydrocarbons, or mixtures thereof, it would have been obvious to one having ordinary skill in the art at the time of the invention to use said reforming gas of JP 06-203865 as the reducing gas.

Limitations recited in claims which are directed to a manner of operating disclosed device, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

With respect to claim 3, modified JP 06-203865 discloses all claim limitations as set forth above and further teaches wherein the inert gas formation means is positioned in at least one of a location in a raw gas feeding means (see for example line B, J, F, D, E, 3, H, 8) for feeding into the fuel reforming device (1) (as

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illustrated), between a reforming catalyst and a CO conversion catalyst layer provided in the fuel reforming device, or in a location upstream of the reforming catalyst layer within the fuel reforming device, or in a location in the reforming catalyst layer provided in the fuel reforming device.

With respect to claim 30, modified JP 06-203865 teaches the apparatus wherein the inert gas formation means (8) is located adjacent the fuel reforming device (as illustrated).

Limitations recited in claims which are directed to a manner of operating disclosed device, neither the manner of operating a disclosed device nor material or article worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

### ***Response to Arguments***

#### **Prior Art Rejection**

Applicant argues that there is no origination point for reducing gas in Erickson. Limitations recited in claims which are directed to a manner of operating disclosed device, neither the manner of operating a disclosed device nor material or article

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worked upon further limit an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states "Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim."

Applicant argues that there is no disclosure or suggestion in either Osamu or Erickson of any way in which the reducer vessel 9 in which the oxidized scavenger is regenerated could be integrated with the system of Osamu so as to teach the claimed adsorbent reduction means and render claim 1 obvious. Examiner respectfully disagrees. The reducer vessel is part of the inert gas generation means of Erickson, which replaces the gas formation means (8) of JP 06-203865, and as such would be included into the modified apparatus of JP 06-203865.

Applicant argues that the inert gas generation means of Osamu is located upstream of the reformer and that it is not located in at least one of the locations as claimed in claim 3. Examiner respectfully disagrees. Since the raw gas feeding means of Osamu comprises, for example, B, J, F, D, E, 3, H, for feeding into the fuel reforming device, and since the inert gas generation means (8) is located in line J, therefore, the inert gas generation means (8) is located in said raw gas feeding means (as illustrated).

Applicant argues that it is unknown whether or not the oxygen gas removing device in Osamu is heated. Examiner respectfully explains that Erickson (see for

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example col. 2, lines 40-50) was relied upon to teach having a heated oxygen gas-removing device to replace the inert gas generation means/oxygen gas stripper in Osamu's apparatus.

Applicant argues that based on the illustration in Figure 1, it is impossible to determine whether or not the oxygen gas removing device 8 is located adjacent to the fuel reforming device 1. Examiner respectfully disagrees. According to the Merriam-Webster Dictionary, the definition of the word "adjacent" is "nearby", "not distant", and as illustrated in Figure 1, the oxygen gas removing device appears to be nearby the reforming device.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaity Handal whose telephone number is (571) 272-8520. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KH

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7/25/2007

  
**BASIA RIDLEY**  
PRIMARY EXAMINER